

# Bushfire Model Exercise Guide

A Practical Guide to Scenario-Based Exercises



***Bushfire Model***

Sharing Firefighting Knowledge

Version 1.0

### Purpose of this Guide

This guide provides a practical approach to planning and running training exercises using the Bushfire Model. These exercises can be used for trainer-led discussions and scenario exercises that support discussion, decision-making, and learning.

A library of scenarios and individual elements are included in the last section for trainers to use when designing their own exercises.

The scenario elements are designed to be used on their own or combined to create larger scenario exercises. They can be adapted to reflect local conditions, training objectives, and agency procedures.

This guide will continue to develop over time as more firefighter feedback and new ideas are received.

### How the guide is structured

The guide is organised as follows:

1. [Using the Model](#) [Page 2](#)
2. [Exercise Process](#) [Page 3](#)
  - Plan Your Exercise
  - Prepare Exercise Area
  - Create Scenario
  - Check for Clarity
  - Exercise Briefing
  - Run the Exercise
  - Debrief
3. [Scenario Library](#) [Page 11](#)
  - Scenarios
  - Scenario Elements
  - Scenario Ideas

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This guide reflects the knowledge, experience and feedback shared by firefighters across Australia. Their contributions continue to shape, improve and expand this resource.

Bushfire Model Exercise Guide  
Version 1.0  
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## Using the Model

The Bushfire Model streamlines planning exercises by reducing the need for detailed maps and running sheets; most exercises can be set up in 5–10 minutes.

Many brigades create highly effective scenarios based on their experience explaining key considerations as they go or prompting with questions such as ‘what do we do now?’ or ‘have you considered this ...?’.

Experience has shown that scenes don’t need to replicate incidents in fine detail. A simple layout is effective in supporting discussion, decision-making, and learning.

*While the model provides the focus; the real value comes from firefighters sharing their knowledge and experience through discussions, decision-making and scenario exercises.*

### **Training Disclaimer and Requirements**

This guide is intended to support training and discussion when using the Bushfire Model. It does not replace operational procedures, doctrine, or local agency requirements.

Trainers are encouraged to:

- Apply agency policies, procedures, standards and command systems
- Use local knowledge and experience to shape scenarios
- Ensure activities remain safe, appropriate, and aligned with crew capability

Exercises are intended to focus on learning and decision-making rather than assessment or compliance.

While every effort has been made to ensure the accuracy and relevance of this guide, it is provided for training purposes only and should be applied in conjunction with agency procedures and professional judgement.



## Exercise Process – Detailed Steps

### Plan Your Exercise

The purpose of this step is to develop a clear, logical exercise design aligned to a learning objective.

Consider:

- **Objectives**, set a small number aligned to exercise complexity (page 6)
- **Design**, select an exercise type (page 6), complexity, and duration to suit the objective and crew capability
- **Development**, plan how the incident starts and progresses
- **Injects**, identify changes to introduce change or prompt decisions (page 6)
- **Resources**, identify the required model elements
- **End point**, identify a clear point to conclude the exercise

**Notes:**

- Exercises can start at any point (arrival, shift change, handover, escalation)
- Even simple scenarios can create challenges when information and time are limited
- Injects should support learning and create opportunities to meet exercise objectives



## Exercise Planning Notes

### Exercise Objectives

Objectives help structure the exercise and guide the learning focus. They differ from incident objectives in that they focus on learning rather than operational outcomes.

A simple way to structure exercise objectives is: **Action + Focus + Context + Time**

*Example: 'Identify key risks to a township within 5 minutes of arrival.'*

Objectives are developed during the exercise planning stage, communicated at the exercise briefing, and revisited in the exercise debrief to guide reflection.

### Exercise Types

Exercises formats depend on the objective, experience of the group, and available time.

Common formats include:

- **Demonstration**  
Introduces a concept, builds understanding. Examples include; trainer-led discussions as part of on-station training or within formal training courses.
- **Simple exercise**  
A short activity working through a fixed scenario.
- **Tactical Decision Game (TDG)**  
A short, time-pressured scenario. Participants assume roles and need to make and communicate decisions.
- **Tactical Exercise Without Troops (TEWT)**  
A facilitated exercise where teams work through a scenario without deploying real crews or resources
- **Discussion exercise**  
A low-pressure way to explore emergency response scenarios, share views and test plans. Often suited to mixed-experience or multi-agency groups

### Using Injects

Injects are simple changes that progress the scenario by introducing new information, changing conditions, or prompting discussion and reassessment.

They help to create opportunities to explore different views and should be realistic and aligned with the learning objective. Trainers can draw on their own experience to create and deliver realistic injects., Injects should be used sparingly allowing time for crews to respond before further changes are introduced.

Injects may be introduced through:

- verbal updates (weather observations, reports, radio traffic)
- changes to the model (fire development, hazards)
- written information (messages or logs)
- role-based inputs (landholders, agencies, stakeholders)

## Prepare Exercise Area

The purpose of this step is to set up a clear, organised space around the model that supports visibility, movement, and smooth facilitation.

Considerations include:

- **Resources** — prepare and position resources (whiteboards, radios, tabards etc)
- **Facilities** — prepare additional rooms or incident management areas
- **Orientation** — align the model to true north so participants can relate the scenario to the real-world setting and communicate consistently



## Setup Scenario

The purpose of this step is to transfer the plan onto the model by building up a scenario that supports the objectives and allows the exercise to develop logically.

Consider:

- **Features** — position key terrain, assets, roads, and natural features
- **Fire**
  - Position the initial fire to match objective with sufficient room to develop
  - Use spot fires to show ignition; multiple spots may indicate deliberate lighting
  - Swap or combine fire shapes during the exercise to show growth and spread
- **Resources** — position appliances, vehicles and heavy plant
- **Incident Control Features** — add control points, sectors or divisions

**Notes:**

- The smoke can be used to temporarily hide important scenario elements
- Keep unassigned resources out of sight unless requested



*Place nearby resources near the model with location and ETA*

## Check the Scenario Setup

The purpose of this step is to confirm the scenario is clear, realistic, and will run smoothly.

- Have a colleague review the layout and planned progression
- Rehearse the scenario flow and timing of injects
- Be aware that participants may take the scenario in different directions and prepare to guide it back.
- Check all supporting tools are ready (maps, forecasts, radios)

## Exercise Briefing

The purpose of briefings are to explain the learning objectives and the rules of the exercise together with details on the incident.

A typical briefing should cover:

- Explain objectives, rules, communication methods and duration.
- Describe the model layout and scale (e.g. the model length represents X km)
- Let participants know of any specific tasks required during the exercise (e.g. briefings, reports, handovers, or After-Action Reviews).
- Allocate roles and allow final questions.
- Outline scenario conditions (date, time, seasonal factors) and incident details.

### Notes:

- Display objectives (e.g. whiteboard)
- Model items are easily recognisable; describe anything that may be unclear
- Ambiguity can be intentional – not everything is known



### Exercise Rules

These rules may be used to keep exercises clear and focused.

- The facilitator is the only one allowed to change the model
- **Time-outs** can be used to discuss a key aspect
- The exercise may be **fast-forwarded** to another point in the scenario
- A **No-Duff call** is a real emergency (not part of the exercise)

## Run the Exercise

The purpose of this step is to deliver the exercise, allowing participants to make decisions and apply actions to meet the objectives.

- Start from dispatch, arrival report or handover. Example - SMEACS briefing delivered to one or more participants
- Update the model in line with the exercise plan or as decisions are made
- Introduce injects as planned
- Adjust the tempo / difficulty to suit crew capability, maintain engagement and allow decisions to develop
- Announce the end of the exercise and outline the final incident situation

### Note:

- Avoid over-controlling the scenario



### Transition to Debrief

Advise the group that a debrief will follow either immediately or after a short break.

## Debrief

The purpose of this step is to consolidate learning, support reflection, and identify improvements. It is not an operational debrief or After-Action Review.

Start by outlining the purpose of the debrief, confirming the duration, and reinforcing that the focus is on decision making and reasoning. Keep the tone supportive and focused on learning, not critique.

Guide the discussion by restating the objectives, then working through key decisions and what influenced them.

Use open questions to draw out thinking, for example:

- What did you identify on arrival?
- What influenced that decision?
- What was being seen at the time?

Debriefs should encourage input from everyone and allow time for responses. A supportive environment focused on learning and shared understanding should allow crews to lead the discussion where possible.

Summarise key takeaways by identifying what worked well and why, along with a small number of practical improvements. Describe how these improvements will be applied in future exercises or operations.



**Scenario Library**

## Scenario Library

Scenarios are the story, the dynamic representations of an incident used to prompt discussion, decision-making and learning.

This library provides a small range of scenarios to show how they can be structured using individual scenario elements. Both the elements and the scenarios can be adapted to suit local conditions and agency standards.

This section is organised into two parts:

### 1. Scenarios

Provide the incident setting, the story. They include a simple description, some decision drivers and a list of the individual scenario elements used.

### 2. Scenario Elements

27 scenario elements have been provided. These elements introduce specific issues, decisions or challenges that can be used on their own for trainer-led discussions or combined within scenarios to build more complex exercises.



*Example of a scenario with multiple elements for discussions and decision-making.*



*A scenario element involving defensive options (line defence).*

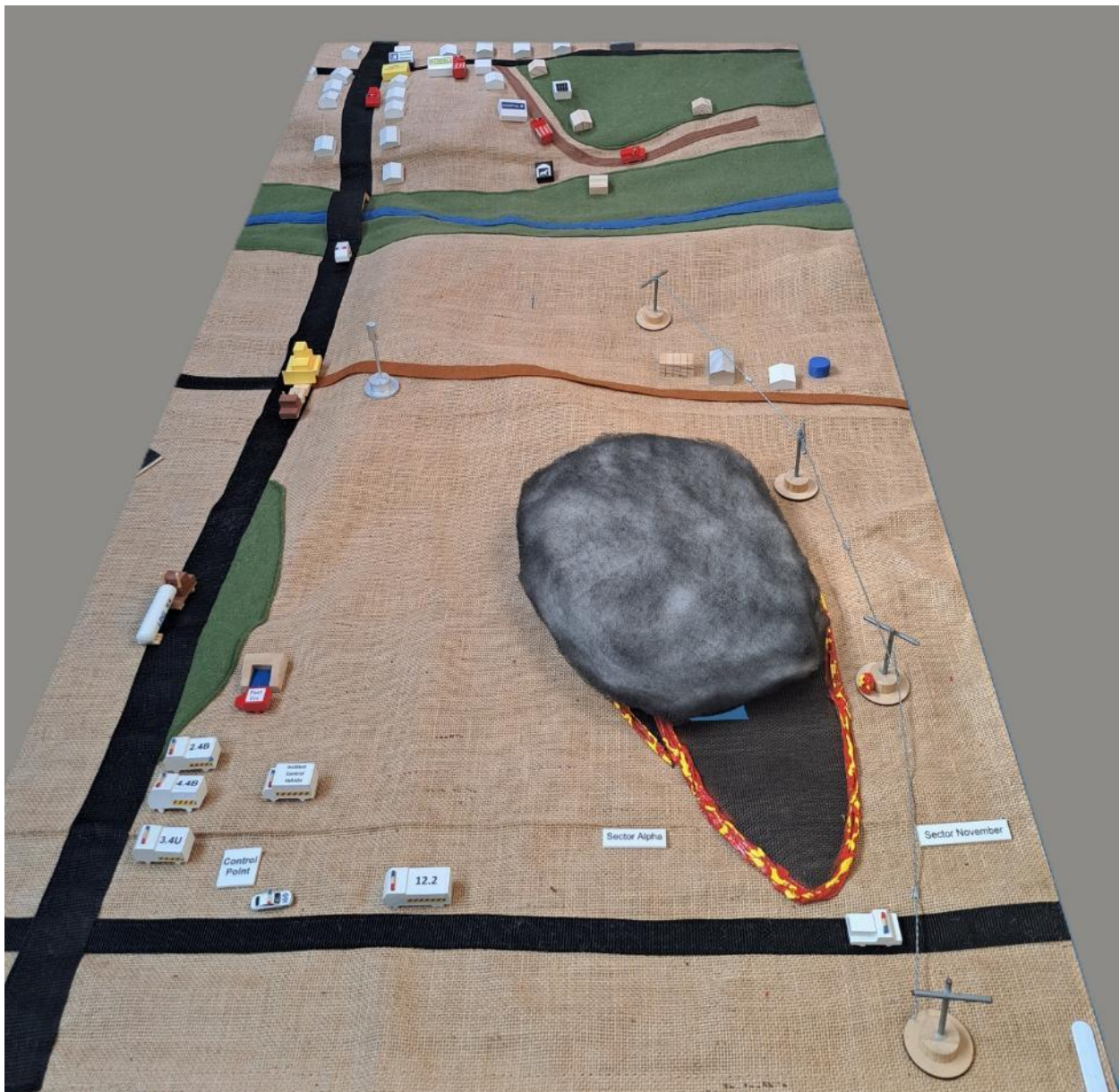
**Scenarios**

## Scenarios

Scenarios provide a structure within which elements can be applied to create more complete and realistic exercises. Noting that these example scenarios represent only a small fraction of what can be created.

The examples are:

1. Bushfire - Safety Risks
2. Bushfire threatens multiple assets
3. Bushfire impacting and urban area
4. Multiple incidents – Bushfire and Road Crash Rescue
5. Sectorising large / complex incidents



Scenario with multiple elements

### Scenario 1. Bushfire - Safety Risks

A bushfire has reached heavier vegetation along a road that is currently being used by firefighters and the public.

An appliance is working on the fireline without an anchor point, while a front-end loader operates without an appliance for protection. A light tanker is positioned upslope of the head fire in an area exposed to spotting.

A power pole is alight with the potential for the pole and line to fall across the sector and road, a dangerous tree is leaning over Sector Alpha.



#### Decision Drivers / Safety Risks:

- Public and Firefighter - need to close road
- Positioning — appliances and crew without secure anchor
  - Light tanker upslope of head fire, surrounded by spot fires
  - FEL operating without appliance protection
- Dangerous tree on Sector Alpha
- Powerline - burning power pole

#### Elements Used

- [Fire Behaviour - Spotting](#)
- [Anchor points](#)
- [Traffic Management](#)
- [Red Flag Warnings](#)

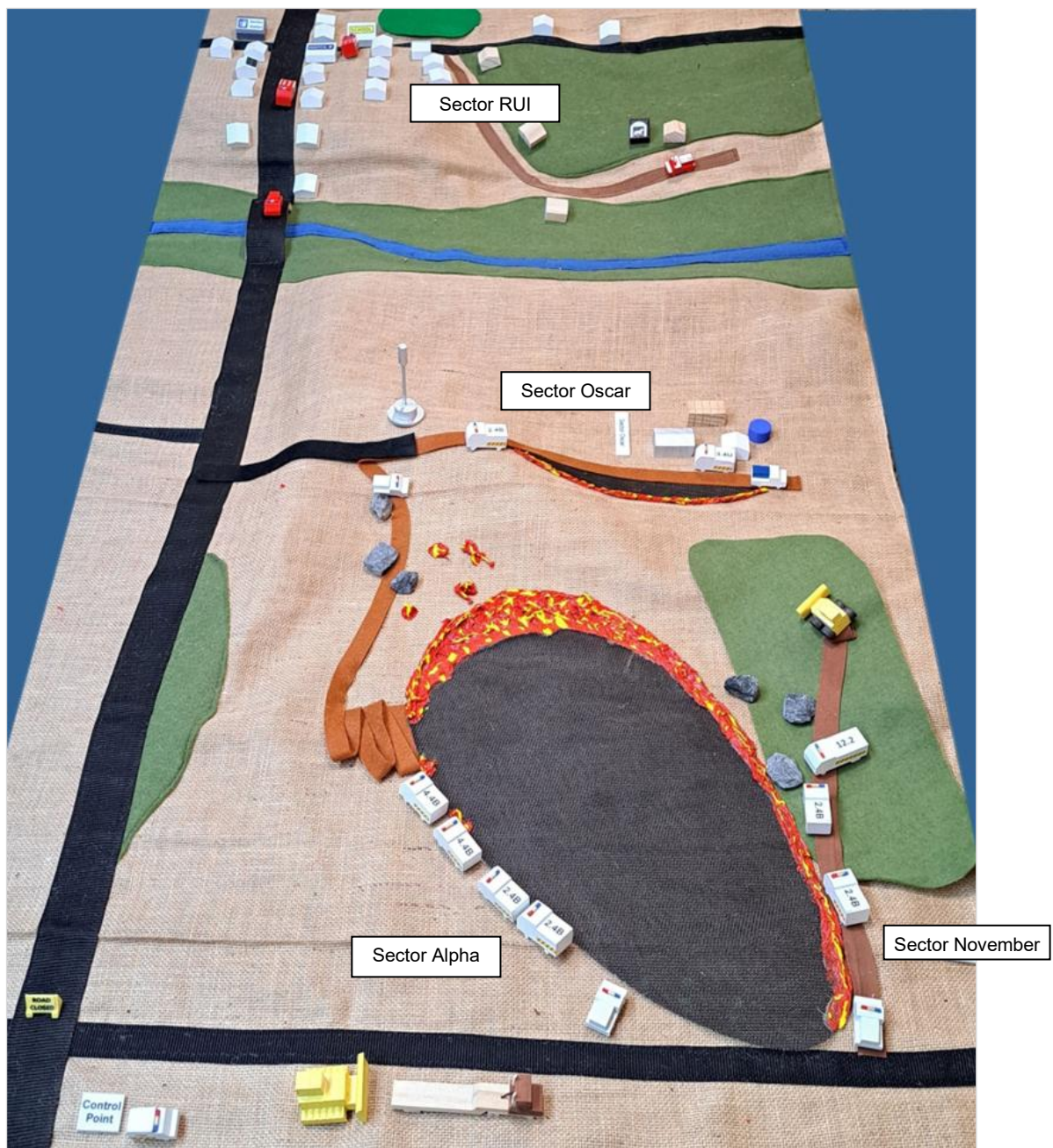
## Scenario 2. Bushfire Threatening Multiple Assets

A bushfire is immediately threatening critical infrastructure and farm buildings; a highway and town will also be threatened.

Forest fuels in Sector November influence fire behaviour and suppression efforts. In this sector a bulk water tanker is restricting access, and no vehicle turn-arounds have been established along the fireline. A front-end loader is operating upslope in unburnt fuel without appliance protection.

Spotting is occurring ahead of the head fire which is moving upslope toward a mobile phone tower. Access along the narrow track between Sector Alpha and the tower is difficult due to rough terrain and steep slope.

A gravel pit near the fire edge in Sector Alpha, presents a potential safety zone.





**Improved** Bulk water tanker not blocking containment line, vehicle turn-around constructed. Appliance providing protection to machine and crews burning out unburnt fuels



**Improved** Congestion on Sector Alpha addressed. Appliances deployed to Sector Oscar or RUI Sector

### Decision Drivers

- Fire behaviour — spotting and upslope spread toward assets
- Access — restricted movement and lack of vehicle turn-arounds
- Escape routes — limited and unreliable access along steep or rough tracks
- Positioning — machinery and appliances exposed upslope in unburnt fuel — bulk water tanker restricting movement on fireline
- Protection — machinery operating without appliance support
- Safety zones — potential refuge at gravel pit near fire edge

### Elements Used

- Fire Behaviour – Topography
- Establishing Sectors and Divisions
- Community Warnings
- Machinery (Fireline Construction)
- Entrapment

### Scenario 3. Bushfire Impacting Urban Area

A grassfire is threatening an urban area. Suppression operations are underway across the incident using aircraft, machinery and appliances. A limited number of Rural Urban Interface (RUI) resources in place. Residents are present at one or more properties, influencing crew priorities.

A landholder is operating independently by using farm machinery to protect assets.

RUI crews respond to multiple structures that have been impacted (ember attack and fire impact). The reliability of the reticulated water supply is uncertain, creating potential constraints on firefighting operations.



#### Decision Drivers

- Fire behaviour — grassfire spread and ember attack impacting urban area
- Values at risk — structures and critical infrastructure under threat
- RUI operations — street assessment, triage and defensive methods
- Resources — adequacy, prioritisation across fireground and urban sectors
- Public safety — need for warnings and evacuations including school, hospital

#### Scenario Elements Used

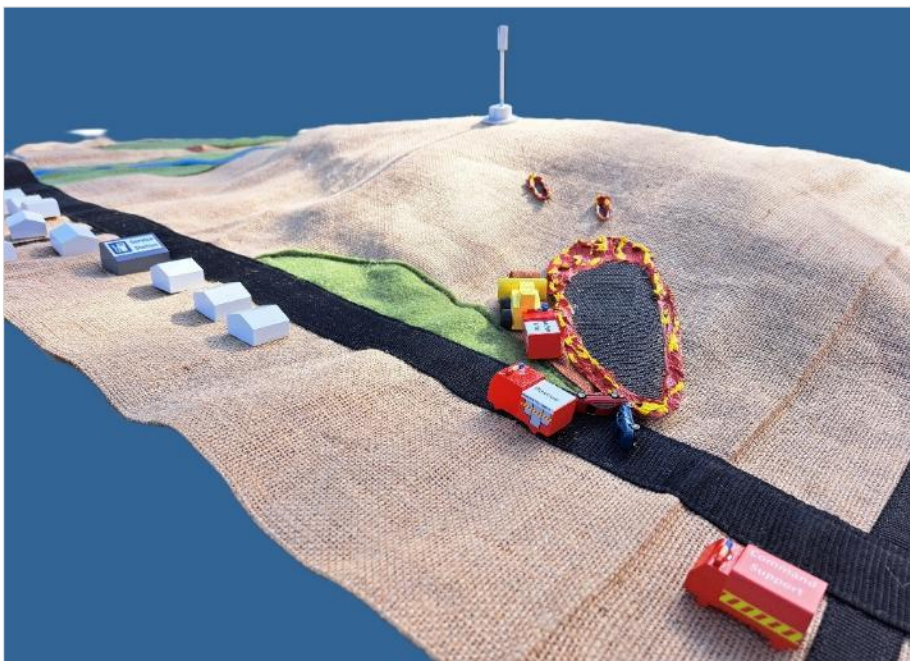
- [Asset Protection and Prioritisation](#)
- [Community Warnings](#)
- [Evacuations](#)
- [Defensive Strategies in the Rural Urban Interface](#)
- [Using Aircraft — Strategy and Tasking](#)

### Scenario 4. Multiple incidents – Bushfire and Road Crash Rescue

A road crash has resulted in a fire that is spreading upslope. There are multiple casualties requiring extraction and treatment as a priority. At the same time, the fire is developing rapidly, creating increasing pressure on crews.

Access to the incident is limited due to steep terrain, restricting movement and complicating both rescue and firefighting operations. Assets are located upslope and along the highway to the west of the fire.

The terrain and assets beyond the ridgeline is unknown, limiting situational awareness and increasing uncertainty about fire spread and further exposures. (**Note:** these features can be positioned and covered until participants advise how they will obtain this intelligence)



#### Decision Drivers

- Competing priorities — simultaneous life rescue and fire suppression tasks
- Control structure — managing multiple incident types under one structure
- Fire behaviour — upslope spread increasing intensity toward the ridgeline
- Values at risk — assets upslope and potential exposures beyond the hill
- Strategy — selecting suppression approach under increasing fire intensity
- Public safety — need for warnings

#### Scenario Elements Used

- Incident Appreciation and Risk Assessment
- Fire Behaviour - Spotting
- Traffic Management
- Community Warnings

## Scenario 5. Sectorisation and Span of Control

Additional resources are being deployed to a large and complex bushfire.

The increasing demands and resources require sectors and divisions to be established as a priority.



*Indication of how divisions and sectors may be established*

### Decision Drivers

- Span of control — number of resources and effective supervision
- Fireground complexity — multiple work areas, control points staging areas
- Sector boundaries — clear division using terrain, roads or fire edge
- Control structure — scaling up and maintaining effective communication
- Resource allocation — deploying resources, establishing

### Scenario Elements Used

- Incident Appreciation and Risk Assessment
- Asset Protection and Prioritisation
- Establishing Sectors and Divisions

**Scenario Elements**

### Scenario Elements

These scenario elements focus on specific situations that may occur on the fireground.

They can be used as stand-alone examples for trainer-led discussions or incorporated into larger scenarios to prompt discussion, decision-making, and learning.

Each element is designed to be adapted using local knowledge, agency procedures and firefighter experience.

#### **Incident Management**

- [Incident Appreciation and Risk Assessment](#)
- [Establishing Sectors and Divisions](#)
- [Communication Planning](#)
- [Traffic Management](#)

#### **Fire Behaviour and Prediction**

- [Fire Behaviour – Fuel](#)
- [Fire Behaviour — Spotting](#)
- [Fire Behaviour – Topography](#)
- [Fire Behaviour — Weather](#)
- [Rates of Spread and Predictions](#)
- [Trigger Points](#)

#### **Strategy and Tactics**

- [Offensive Strategies](#)
- [Offensive Strategies — Indirect Attack](#)
- [Indirect Attack — Backburn Decision](#)
- [Defensive Strategies in the Rural Urban Interface](#)

#### **Assets and Community Protection**

- [Asset Protection and Prioritisation](#)
- [Community Warnings](#)
- [Evacuations](#)

### **Operations**

- Securing the Scene and Preserving Evidence
- Using Aircraft — Strategy and Tasking
- Using Aircraft — Ground Controller
- Machinery (Fireline Construction)
- Fence-line Access
- Mop-Up and Patrol

### **Safety and Risk**

- Anchor Points
- Entrapment
- Burnover Response
- Red Flag Warnings

### Incident Management

These elements focus on incident control, communication, coordination and decision-making.

#### Elements in this section

- [Incident Appreciation and Risk Assessment](#)
- [Establishing Sectors and Divisions](#)
- [Communication Planning](#)
- [Traffic Management](#)

## Incident Appreciation and Risk Assessment

### Operational Considerations

- Initial size-up — assessment of fire, terrain, access and exposures
- Reporting — accuracy and timeliness of reporting
- Situational awareness — maintaining understanding of changing conditions
- Safety — LACES established, hazards identified and managed
- Changing conditions — updating assessments, reporting, as fire develops
- Information gaps — operating with incomplete or uncertain information



## Establishing Sectors and Divisions

### Operational Considerations

- Locating — Control Points and Staging Areas
- Span of control — resources, manageable supervision, incident prediction
- Boundaries — use of roads, terrain or fire edge
- Command structure — expand as incident complexity increases
- Communication flow — maintaining clear reporting lines and information flow
- Coordination — managing operations across sectors and divisions
- Resource allocation — deploying resources across sectors



*Names and boundaries of sectors and divisions established*



## Communication Planning

### Operational Considerations

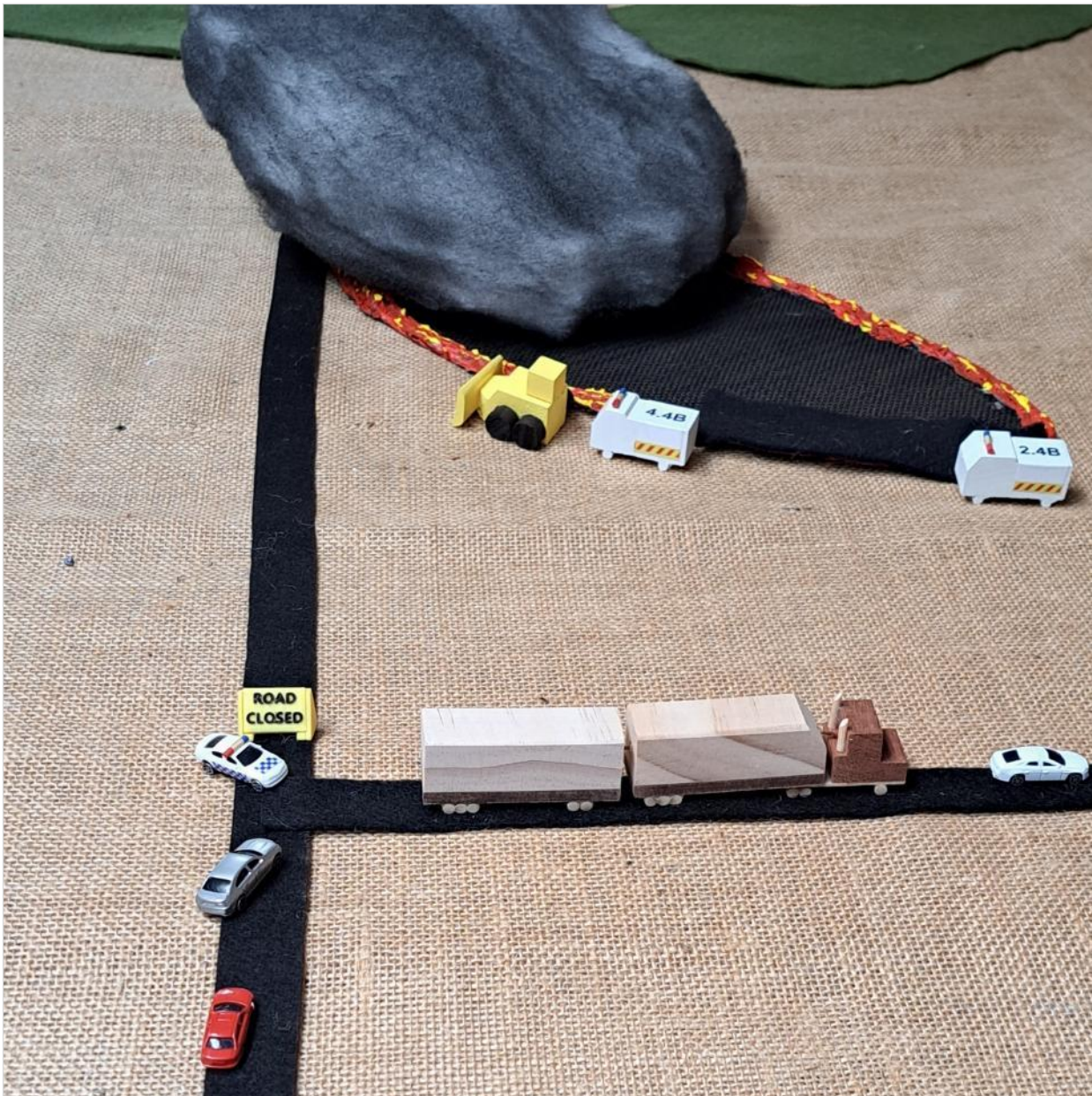
- Communications Plan — channels, documented, operational needs
- Facilities — infrastructure, radio repeaters, mobile repeaters, satellite-based
- Inter-agency — communication between agencies
- Coverage — influence of distance, terrain, fire ground conditions
- Safety — maintaining communication



## Traffic Management

### Operational Considerations

- Authority — legislation, guidelines, closing roads, managing, detour traffic
- Firefighter safety — managing risks from traffic, closing roads
- Appliance positioning — visibility and protection on roads
- Road closures — timing, location, types and managing
- Vehicle Control Points — positioning, safety, operator welfare, relocating
- Traffic flow — congestion affecting operations
- Access and egress — maintaining safe crew movement on roads
- Opening Roads — risk assessment, process, inspection, authority, notifications



*Effective road closure with approved detour*

## Fire Behaviour and Prediction

These elements focus on understanding and predicting fire behaviour.

### Elements in this section

- [Fire Behaviour — Fuel](#)
- [Fire Behaviour — Spotting](#)
- [Fire Behaviour — Topography](#)
- [Fire Behaviour — Weather](#)
- [Rates of Spread and Predictions](#)
- [Trigger Points](#)

## Fire Behaviour – Fuel

### Operational Considerations

- Fuel load — load, availability, fire intensity
- Fuel structure — spread, fire behaviour, wind interaction
- Fuel condition — curing, moisture content
- Fuel continuity — sustained spread
- Containment — containment options, machinery needs
- Control — patrol duration, mop-up standards and re-ignition risk



*Smoke darkening at base as fire reaches heavier fuels.*

## Fire Behaviour - Spotting

### Operational Considerations

- Fire behaviour — spotting distance, density, wind speed, wind height, direction
- Fuel type differences — fire behaviour and spotting
- Rate of spread — effect on head fire rate of spread
- Influence on control strategies — containment, backburning, aerial suppression
- Resource deployment — crews positioned for spotting
- Objectives & strategies — impact of spotting on assets and strategies
- Exposures — new fires threatening assets not previously at risk
- Crew safety — fire developing in multiple directions around crews



*Spotting into urban areas and farm assets*

## Fire Behaviour - Topography

### Operational Considerations

- Slope — rate of spread, spotting, access
- Aspect — fuel load, fuel condition, fire behaviour
- Wind interaction — eddies and turbulence affecting spread direction
- Control line — positioned relative to fire and terrain
- Changing conditions — fire behaviour shifting quickly with terrain features
- Local winds — terrain-driven winds changing direction and strength
- Wind variation — shifting flow in gullies, spurs and ridgelines



*Slope influencing fire behaviour*



*Urban area situated above river*



*Terrain – wind interactions*

## Fire Behaviour - Weather

### Operational Considerations

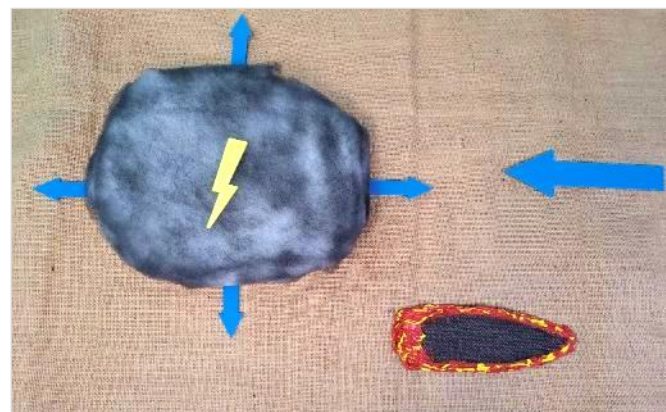
- Wind speed — rate of spread and intensity
- Wind direction — shifting fire direction, flank fires changing to head fires
- Temperature — fuel dryness, fire behaviour, diurnal changes
- Relative humidity — fuel moisture, fire behaviour, diurnal changes
- Spotting conditions — wind speed / direction, fuel conditions
- Weather observations — monitoring and tracking weather conditions
- Atmospheric stability — stable, unstable atmospheres - fire behaviour
  - reading smoke columns
  - effect of thunderstorms on fire behaviour



Whiteboard marker used to show wind strength



Smoke plume hitting inversion layer



Thunderstorm showing downdrafts

## Rates of Spread and Predictions

### Operational Considerations

- Rates of spread — variations across fuel types and terrain
- Incident Weather Forecasts — requesting, understanding, applying
- Values at risk — assets threatened by fire at different times
- Model selection — selecting fire behaviour models, applying fuel, weather inputs
- Prediction confidence — identifying uncertainty in data and predictions
- Changing conditions — updating predictions as weather and fire behaviour shifts

### Applications

- Community Safety — informing warnings and evacuations
- Strategy — influencing selection within fire intensity limits



Weather and fuel inputs for fire behaviour modelling

## Trigger Points

### Operational Considerations

- Placement — related to fire spread, recorded, communicated
- Monitoring — fire position / behaviour and trigger point monitored
- Conditions — reviewed as changes affect fire behaviour
- Enacting — effective action when trigger point is reached
- Communication — shared understanding of trigger points — crews, agencies
- Consequences — impact of missing or delaying trigger decisions



*Determining trigger points using ROS*



*Trigger point for closing road*

## Strategy and Tactics

These elements focus on selecting and applying suppression strategies.

### Elements in this section

- [Offensive Strategies](#)
- [Offensive Strategies — Indirect Attack](#)
- [Indirect Attack — Backburn Decision](#)
- [Defensive Strategies in the Rural Urban Interface](#)

Offensive Strategies

Operational Considerations

- Conditions — safety, access, resources, fire intensity, rate of spread
- Strategy selection — safe, exposures, timely and effective control,
- Direct Attack — safety, viability, advantages, disadvantages on head, flank or tail
- Parallel attack — safety, viability, advantages, disadvantages, anchor point
- Parallel attack — improving safety and containment by ‘bringing the black’
- Indirect attack — suitable locations, adequate time and resources
- Priorities — directing effort to priority sectors



Direct attack on head fire



Direct attack on flank in forest with machines



Parallel attack



Parallel attack - burning unburnt fuels



Indirect attack

## Offensive Strategy – Indirect Attack

### Operational Considerations

- Strategy selection — viability, safety of direct and parallel attack considered
- Access — terrain limiting movement and fireline construction
- Resources — limited crews and equipment



*Terrain, limited resources and fire behaviour restricting direct attack*



## Backburn Decision

### Operational Considerations

- Control line — choosing a secure line ahead of the fire
- Weather — current and forecast conditions suitable for backburn
- Resources — sufficient crews in position to establish and hold the burn
- Depth — adequate backburn depth achievable to hold the head fire, spotting
- Fire behaviour — expected escalation in junction zone, prepare for spotting



*Backburn commenced*



*Effect of wind change on main fire and backburn*

## Defensive Strategies in the Rural Urban Interface

### Operational Considerations

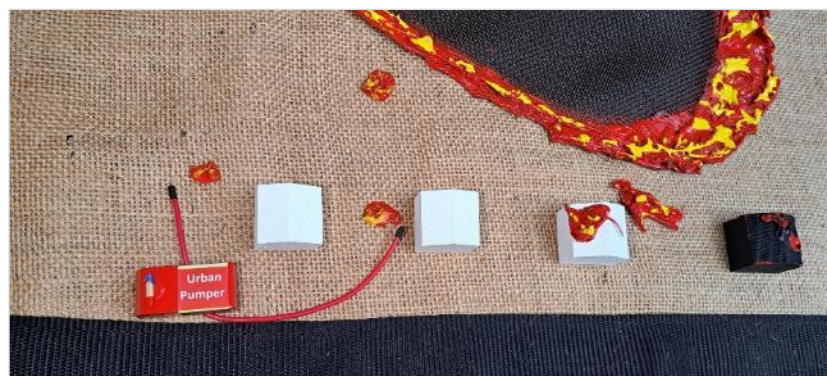
- Immediate street assessment — situation assessment on arrival
- Structure triage — assessing property defendability
- Resources — number, type, capability of crews and resources
- Defensive strategies — line, ember and backstop defence
- Withdrawal triggers — fire behaviour, water loss, escape route risk
- Fire impact — rapid escalation as fire reaches edge of urban area



*Structures with different levels of involvement*



*Line defence*



*Ember defence*

### Asset and Community Protection

These elements focus on protecting strategic priorities, while supporting community safety through warnings and evacuations.

#### Elements in this section

- [Asset Protection and Prioritisation](#)
- [Community Warnings](#)
- [Evacuations](#)

## Asset Protection and Prioritisation

### Operational Considerations

- Values at risk — assets under threat, strategic priorities
- Resource limits — number and type of appliances, aircraft, crew capability
- Prioritisation — selecting where crews can be most effective
- Property assessments — criteria applied, assessed, recorded and reported
- Access and movement — moving between properties under pressure
- Fire behaviour impact — intensity affecting ability to defend
- Critical Infrastructure — priorities, impact of loss of structures, utilities



*Assets within the Rural Urban Interface*

## Community Warnings

### Operational Considerations

- Threat — to community from fire and smoke
- Community Warning — types, timing, process, wording, defining areas
- Decision pressure — limited time, incomplete information
- Risk assessments — evacuation routes / roads impacted by fire and smoke
- Coordination — information, fire suppression, road closures
- Updates — updating messaging as situation changes



*Community Warnings (bushfire) defined with boundaries*



*Community Warnings for other hazards*

## Evacuations

### Operational Considerations

- Authority — legislation, emergency powers, delegation of authority
- Decision-making process — triggers, thresholds, risk assessment
- Multi-agency coordination — roles, responsibilities, control agency
- Decision — when and why to evacuate, areas defined, evacuation type
- Security — evacuated areas, patrol, crew briefings
- Communication — community warnings, telephone warning systems, media
- Vulnerable persons — identifying, needs, transport, welfare support
- Evacuation centres — location(s), capacity, management, access, pets
- Returning residents — fire area declared safe, safety managed, utilities



*Fire impacting evacuation route*

Evacuation exercises can focus on the incident level or examine specific situations by adding detail to the sites (hospitals, residential aged care, schools). This allows closer examination within the context of the larger incident.

As an example:

|                               |                     |
|-------------------------------|---------------------|
| <b>Regional Hospital</b>      | 167 persons on site |
| <b>Patients (70)</b>          |                     |
| Critical care (ventilated)    | 5                   |
| Non-ambulant ward patients    | 18                  |
| Wheelchair users              | 12                  |
| Assisted ambulant patients    | 15                  |
| Independent ambulant patients | 20                  |
| <b>Staff (63)</b>             |                     |
| Clinical staff                | 45                  |
| Support staff                 | 18                  |
| <b>Others (34)</b>            |                     |
| Visitors                      | 25                  |
| Contractors/Volunteers        | 9                   |



### Operations

These elements focus on operational activities, resources and tasks used to support incident management and suppression.

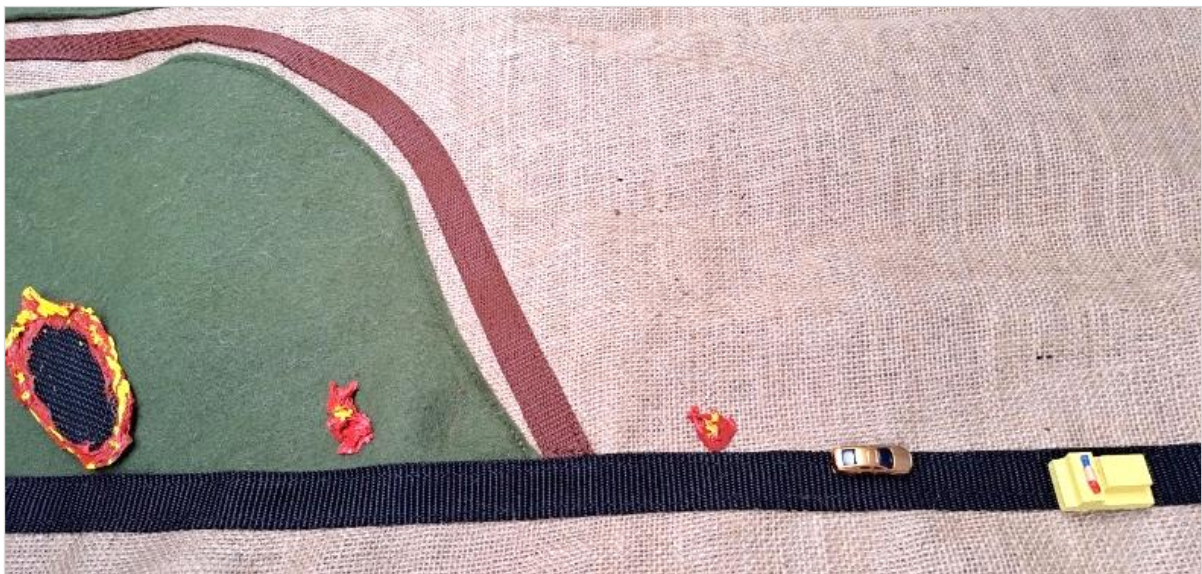
#### Elements in this section

- [Securing the Scene and Preserving Evidence](#)
- [Using Aircraft — Strategy and Tasking](#)
- [Using Aircraft — Ground Controller](#)
- [Machinery \(Fireline Construction\)](#)
- [Fence-line Access](#)
- [Mop-Up and Patrol](#)

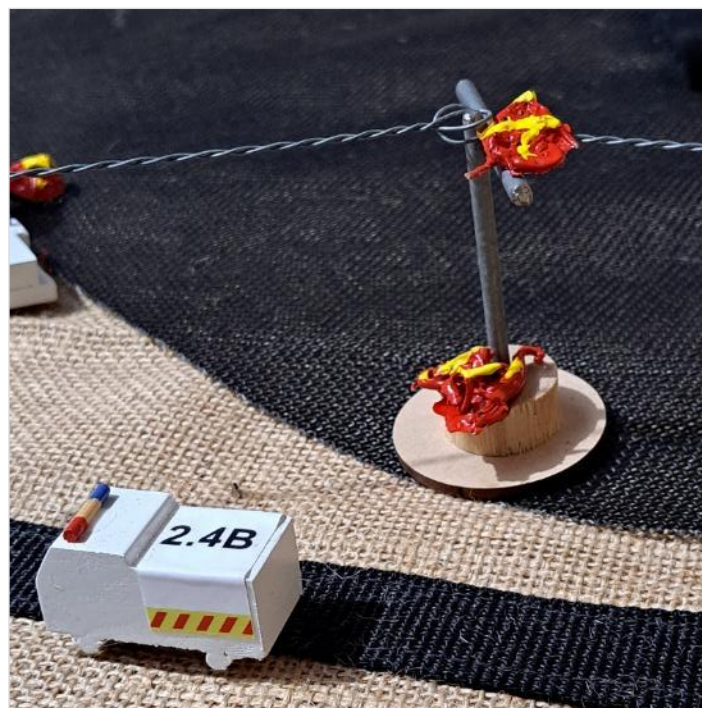
## Securing the Scene and Preserving Evidence

### Operational Considerations

- Scene Integrity — securing point of origin and surrounding area
- Evidence — collection, preventing disturbance, contamination, or removal
- Cause and origin — recognising indicators, accurately recording and reporting
- Communication — accuracy and sensitivity when reporting observations
- Investigation — requesting specialists, handover to investigators
- Competing priorities — suppression activities impacting scene preservation



*Suspicious lighting pattern and vehicle leaving area as crews arrive*



*Managing safety, suppression and scene preservation*

## Using Aircraft — Strategy and Tasking

### Operational Considerations

- Activation criteria — applying criteria when requesting aircraft
- Strategy selection — direct, indirect or combination attack methods
- Fire behaviour — intensity, rate of spread, spotting affecting drop effectiveness
- Fuel type — influencing penetration and effectiveness of drops
- Water sources — availability, reloading crews, location return times
- Suppressants — water, foam, retardant effectiveness and use in sensitive areas
- Ground support — crews required to consolidate drops
- Safety — hazards, visibility and conditions affecting operations



*Working with ground crews*



*Combined strategies*



*Rotary and fixed wing aircraft*



*Water drop in sensitive areas*



*LAT operations*

## Using Aircraft — Ground Controller

### Operational Considerations

- Ground controller role — established, role, reporting
- Communication — channels, inbound calls, continuous ground-to-air comms,
- Strategy — tasking aligned to incident objectives, sector, drop details
- Hazards — risks to aircraft and crews affecting operations
- Drop zone — ensuring crews are clear, safe and timely return
- Drop effectiveness — feedback of accuracy and impact
- Follow-up actions — instructions after drop
- Suppressants — foam, retardant or water affecting effectiveness and constraints



*Coordinating aerial operations*



*Aircraft hazards - wind farms, towers and drones*



*Accuracy Bullseye, Drift and Gap*

## Machinery (Fireline Construction)

### Operational Considerations

- Machine type — selection to suit vegetation, terrain, strategy, working at night
- Production rate — progress varying with fuel, terrain and conditions
- Access constraints — terrain and fuel structure limiting machine movement
- Tyre damage risk — staking in rocky and vegetated terrain
- Fire behaviour — affecting strategies, working distance and progress
- Support and protection — machinery requiring appliance support for safety
- Line standards — trafficability including turnarounds and passing
- Environmental — hygiene requirements and limitations in sensitive areas
- Logistics — refuelling, servicing, repairs, moving, operator hours



*Fireline construction using front end loader*



*Grader and windrow*



*Construction of vehicle turn-arounds*

## Fence-line Access

### Operational Considerations

- Authority — legislation, authorised to cut fences, conditions
- Practical — where and when to cut fences, communicating, marking
- Safety — working in areas with limited escape
- Broader impacts — landholders, livestock, and follow-up considerations
- Positioning — access, predictions, appliances in paddocks



Mop-Up and Patrol

Operational Considerations

- Containment — condition, effectiveness of control lines
- Re-ignition risk — surface and elevated fuels
- Resource commitment — ongoing allocation to mop-up and patrol
- Mop-up depth — extent of blacking out required along the perimeter
- Patrol effectiveness — early identification of risk and control of new ignitions
- Conditions — weather forecast / outlook influencing ongoing fire activity and risk
- Incident status — progression from contained - controlled - safe



*Fireline security – unburnt fuels and unburnt pocket*



*Patrol – spotting over control line*



*Mop-up using machines*



### Safety and Risk

These elements focus on identifying, assessing and managing risks to firefighters and supporting safe operations on the fireground.

#### Elements in this section

- [Anchor Points](#)
- [Entrapment](#)
- [Burnover Response](#)
- [Red Flag Warnings](#)

## Anchor Points

### Operational Considerations

- Anchor point — types, importance,
- Risk without — fire to outflank crews, ineffective suppression
- Positioning — maintaining contact with burnt ground (one-foot in the black)



*Road as an anchor point*



*Tail as the anchor point*



*No anchor point, appliance outflanked by fire*

## Entrapment

### Operational Considerations

- Entrapment — recognising entrapment risk
- Safety systems — applying and maintaining LACES, others
- Fire behaviour change — shifts in intensity, direction or spread towards crews
- Dead man zone — recognising and managing risk
- Escape routes — availability and feasibility of escape to safety
- Escape route compromise — access blocked or cut off by barriers including fire
- Safety zones — burnt, treated or cleared areas



*Barriers limiting escape – infrastructure, fallen trees and fire*



## Burnover Response

### Operational Considerations

- Emergency message — format, communicating immediate danger and situation
- Communication priority — maintaining contact during critical events
- Escape routes — availability, ability to withdraw to safety
- Safety zone — availability, known location, access
- Crew protection systems — positioning, preparing appliance protection systems
- Fire conditions — heat, smoke and radiant exposure during impact
- Post-impact — crew welfare, communication and relocation



*Potential burnover event*



*Using machines to clear safety zone*

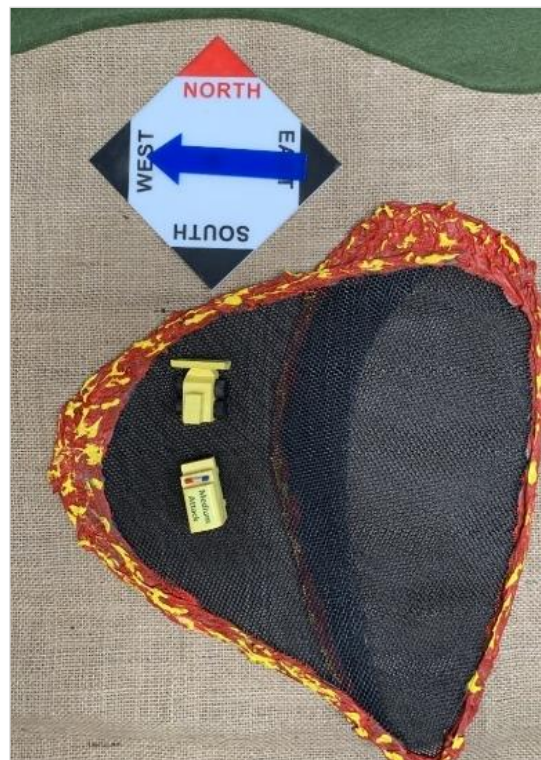
Red Flag Warnings

Operational Considerations

- Fire behaviour — extreme changes direction and/or intensity
- Weather change — sudden unforecasted changes affecting fire behaviour
- Hazards — unexploded ordnance, fallen powerlines or hazardous materials
- Emerging risk — new or escalating hazards not covered in briefings
- Communication — flow of warnings through incident command structure
- Communication effectiveness — ensuring receipt, acknowledged and recorded



Unexploded ordnance on fireline



Unforecasted wind change



Powerline across smoke-affected road



Hazardous materials

This guide reflects the feedback shared by firefighters from across Australia. Their knowledge and experience continues to shape and develop this resource and the Bushfire Model.

## ***Bushfire Model***

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**Sharing Firefighting Knowledge**

[www.bushfiremodel.com.au](http://www.bushfiremodel.com.au)

[info@bushfiremodel.com.au](mailto:info@bushfiremodel.com.au)